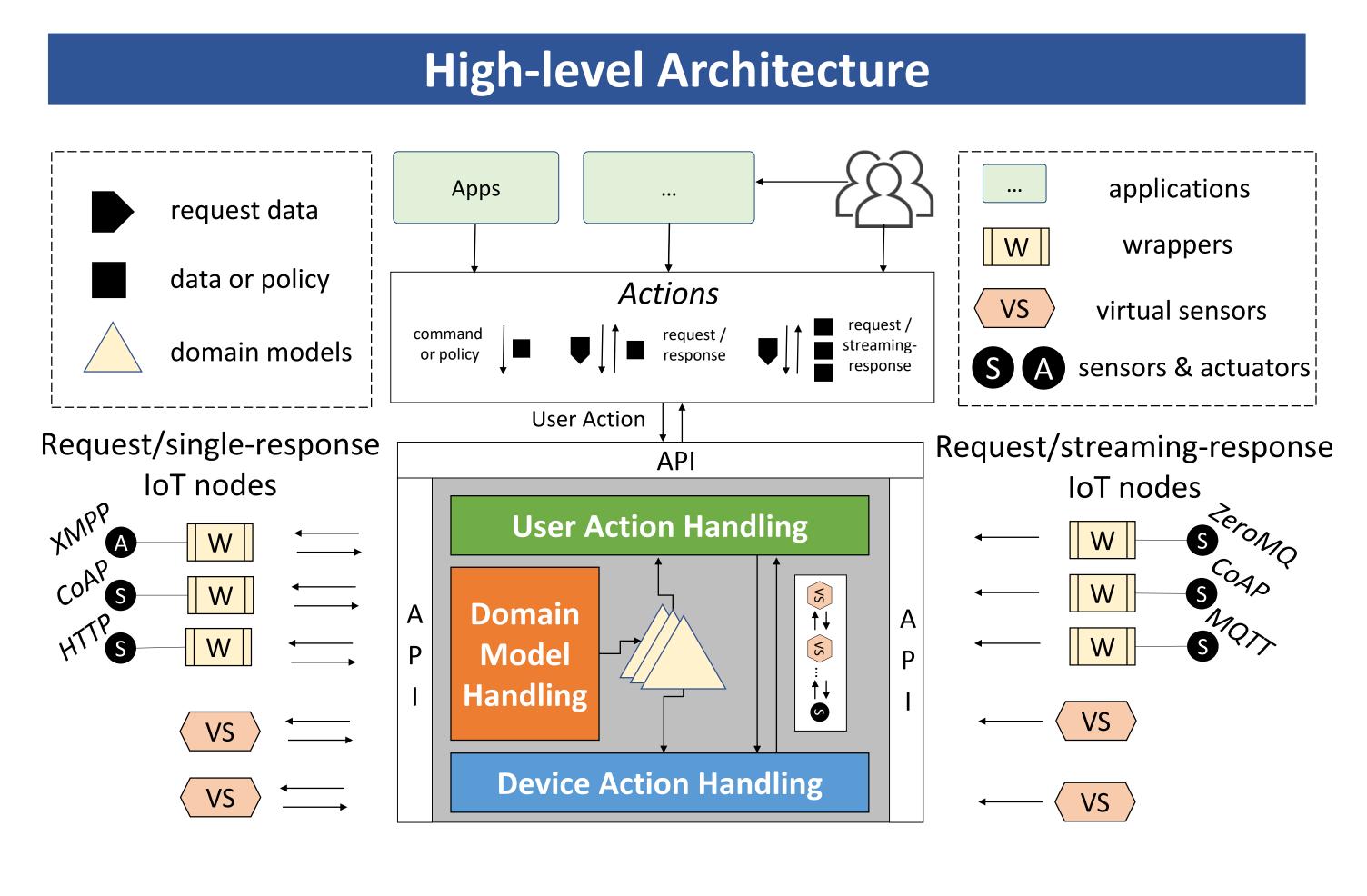


SemIoTic addresses three main challenges:

1- Interoperability: Manufacturers of IoT devices use diverse mechanisms across multiple layers to enable communication with their platforms. An end-to-end solution that includes smartspaces, applications and devices is required.

2- Reusability: Developers should create smart applications that can be deployed and reused across multiple contexts -- e.g., smart homes, offices and cities, regardless of the underlying device infrastructure. 3- User Privacy: There is a significant legislative support for user privacy. Users should understand what data is being collected/inferred about them and thus, expressing their preferences about it.



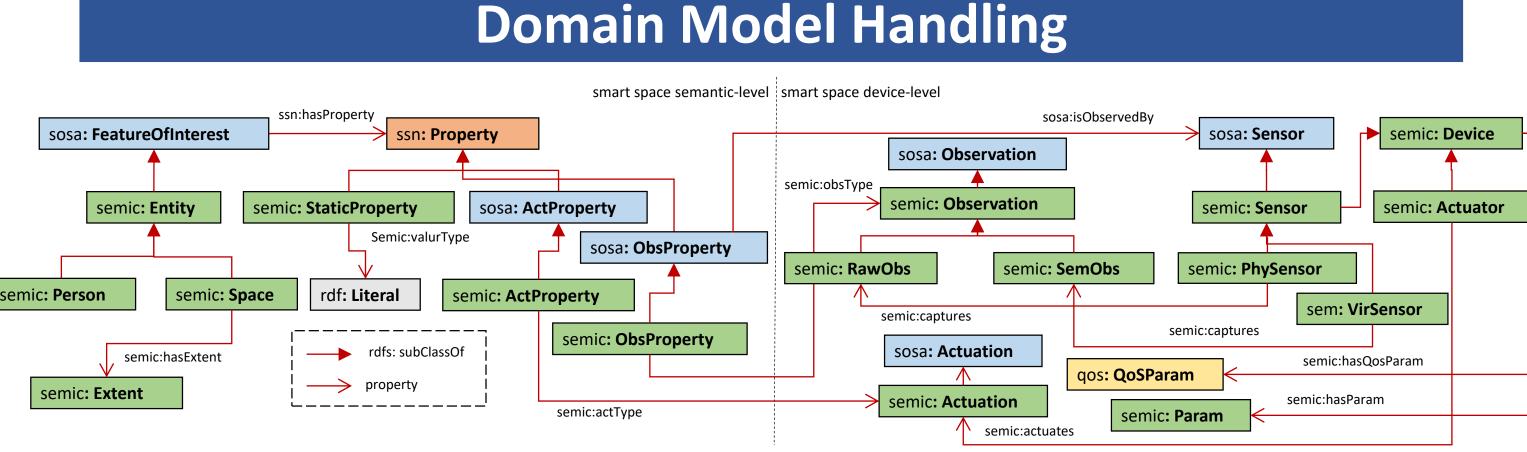




SemIoTic: Bridging the Semantic Gap in IoT Spaces

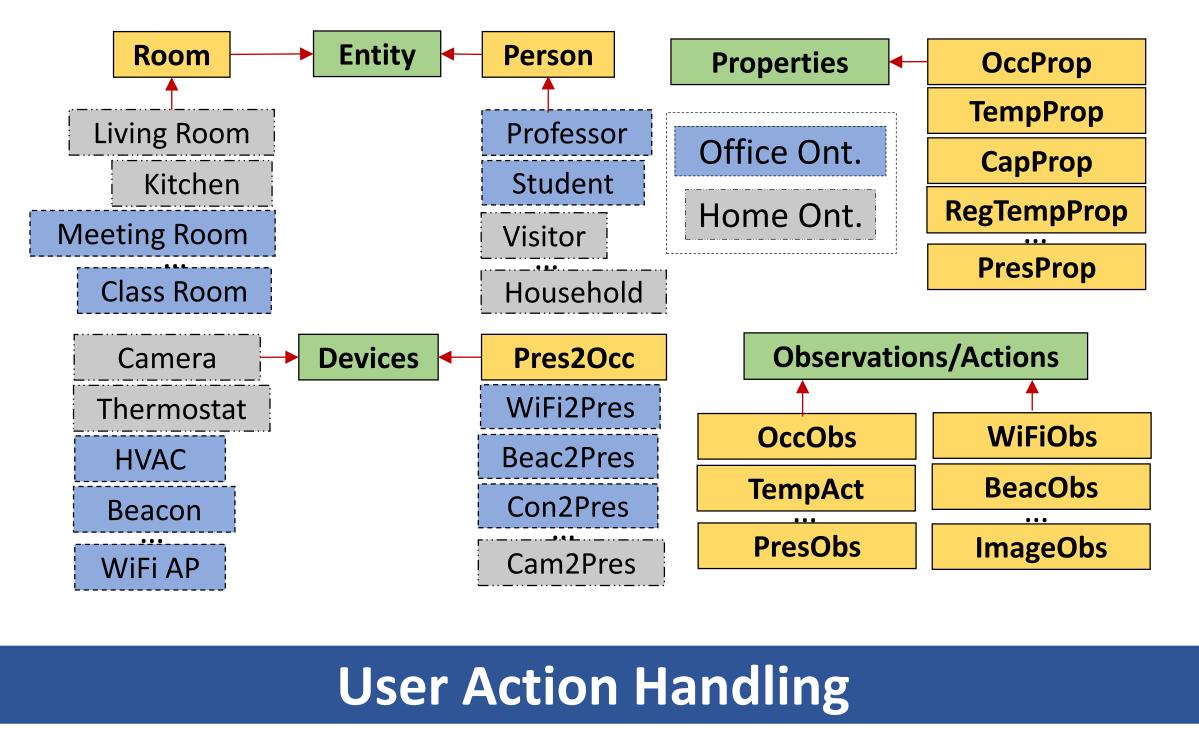
Sumaya Almanee, Georgios Bouloukakis, Daokun Jiang, Sameera Ghayyur, Dhrubajyoti Ghosh, Peeyush Gupta, Yiming Lin, Sharad Mehrotra, Primal Pappachan, Eun-Jeong Shin, Nalini Venkatasubramanian, Guoxi Wang, Roberto Yus

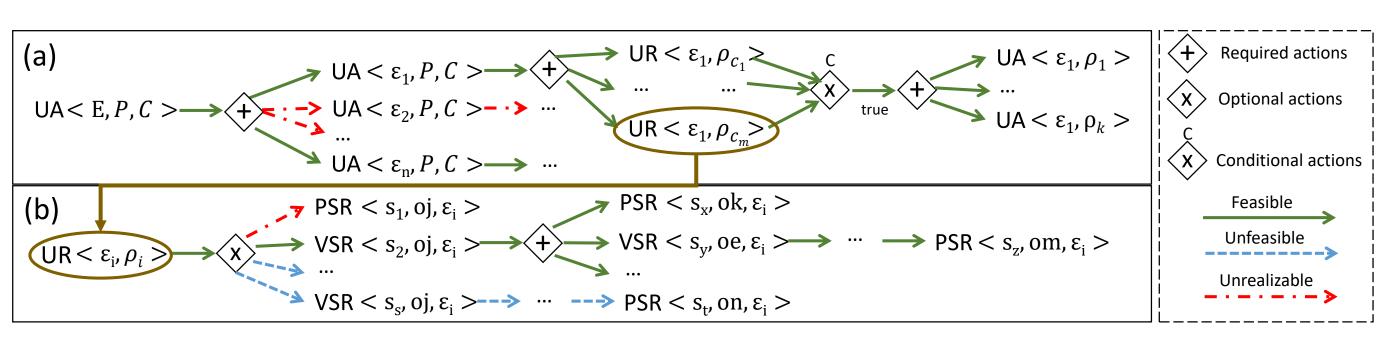
University of California, Irvine



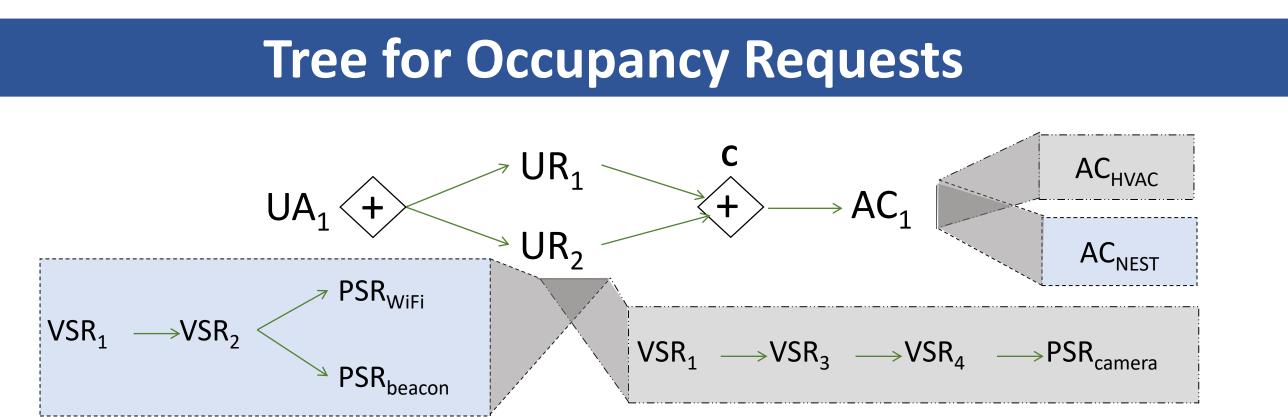
The SEMIC meta ontology supports the definition of the higher-level concepts of the IoT space - i.e., types of spaces, users and sensors/actuators, as well as specific instances of those types.

Smart building/home Domain Model





BPMN inspired data structures to handle high-level user actions -feasible and realizable execution plans are generated to be executed.

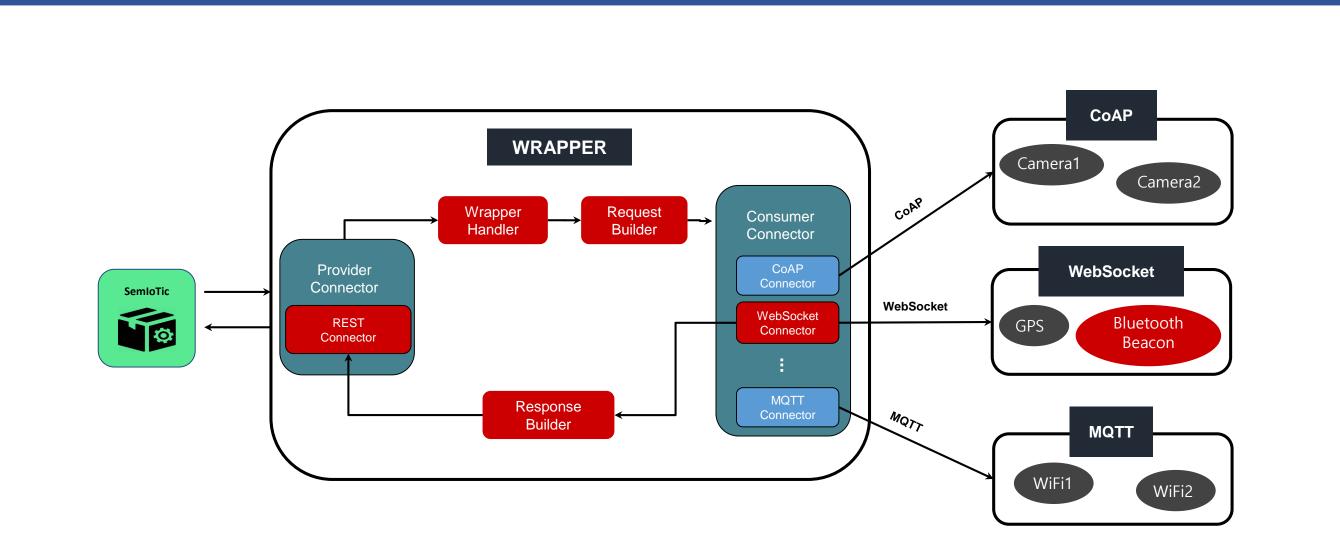


Acknowledgements

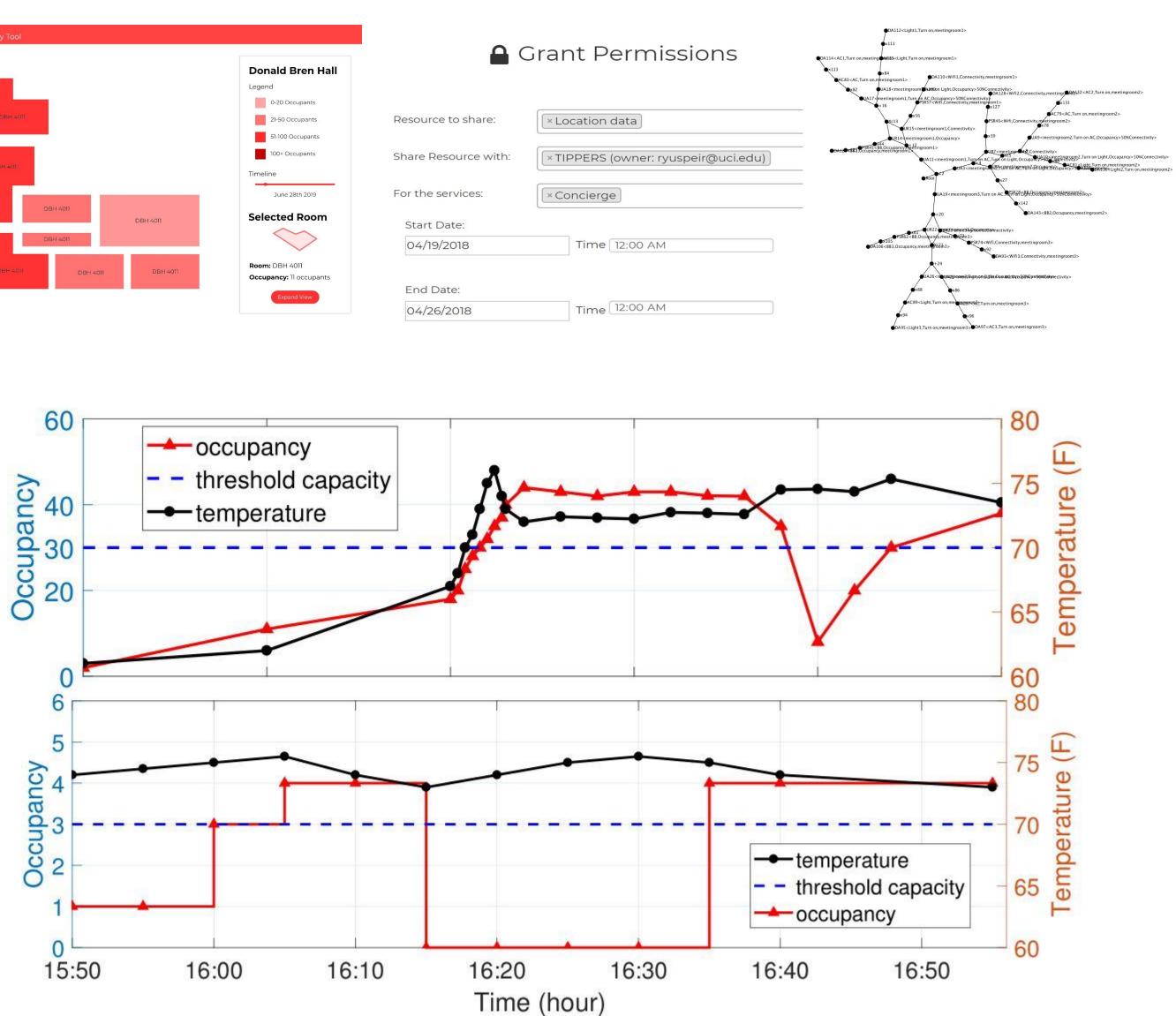
Lasse Aleksander Nordahl Tristan Gabriel Jogminas Leo Yuan-Hao Peng Andrei Homentcovschi Hye Eun, Song Hyun Ji, Lee Dong Cheol, Jwa Myoung Hun, Han

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Device Action Handling

Results

Occupancy and temperature measurements in smart campus vs. home.

Future Work

• Handling user actions using sensor data stored in database systems.

• Incorporating mobile IoT sensors and actuators.